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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,875	12/31/2003	Yan Zhou	75622P006501	6308
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DAVIS & ASSOCIATES P.O. BOX 1093 DRIPPING SPRINGS, TX 78620			EXAMINER SINGH, RAMNANDAN P	
			ART UNIT 2614	PAPER NUMBER

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/749,875

Applicant(s)

ZHOU, YAN

Examiner

Ramnandan Singh

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>Feb. 02, 2006</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed on Feb. 02, 2006 have been fully considered but they are not persuasive.

(i) Applicant's argument—"Applicant submits that Lee does not teach or suggest an integrated circuit driver that combines a downstream voice signal and downstream data signal into a common downstream signal for the subscriber line" on page 3.

Examiner's response—First, the applicant's argument is not directed to the claim. Claim 1 recites the limitation, "A subscriber line transceiver apparatus, comprising: an integrated circuit coupling at least one of an upstream and a downstream voice path for carrying voice signals to a subscriber line, wherein the integrated circuit couples at least one of an upstream and a downstream data path for carrying data signals to the subscriber line, ....". Clearly, the integrated circuit combines **at least one of an upstream and a downstream...**", not necessarily a downstream voice signal and downstream data signal. Second, Lee does suggest that "The voice channel circuitry may be integrated on the same integrated circuit die as the xDSL circuitry, if a single clock is used for synchronization" [Fig. 2; col. 8, lines 47-49]. He, further, teaches how the synchronization using a single clock can be applied [col. 8, line 50 to col. 9, line 65].

(ii) Applicant's argument----"In contrast, claim 1 includes the language: 1. A subscriber line interface circuit apparatus, comprising: *a driver combining a downstream voice signal in a voiceband range and a downstream data signal in a non-voiceband*

*range into a common downstream signal for a subscriber line; and receiver circuitry coupled to provide an upstream data signal and an upstream voice signal from an upstream signal carried by the subscriber line, wherein the driver and receiver circuitry reside on a same integrated circuit die.* (Claim 1( (emphasis added). Thus claim 1 is not anticipated by Lee” on page 4.

Examiner's response---Examiner asserts that the above recitation of claim 1 does not belong to the instant application.

(iii) Applicant's argument---“Applicant submits that *Hjartarson does not teach or suggest (1) a SLIC having driver and receiver circuitry residing on the same integrated circuit die*” on page 6.

Examiner's response--- The applicant's argument is not directed to the claim, as claim 1 does not have the limitation “*integrated circuit die*”.

(iv) Applicant's argument---“In contrast, claim 1 includes the language: 1. A subscriber line interface circuit apparatus, comprising: *a driver combining a downstream voice signal in a voiceband range and a downstream data signal in a non-voiceband range into a common downstream signal for a subscriber line; and receiver circuitry coupled to provide an upstream data signal and an upstream voice signal from an upstream signal carried by the subscriber line, wherein the driver and receiver circuitry reside on a same integrated circuit die.* (Claim 1( (emphasis added). Thus claim 1 is not anticipated by Lee or *Hjartarson*” on page 6.

Examiner's response---Examiner asserts that the above recitation of claim 1 does not belong to the instant application.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 4-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee [US 6,944,213 B2].

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Lee teaches an integrated subscriber line interface circuit apparatus (transceiver) shown in Fig. 2, comprising:

an integrated circuit coupling at least one of an upstream and a downstream voice path for carrying voice signals to a subscriber line (290),

wherein the integrated circuit couples at least one of an upstream and a downstream data path for carrying data signals to the subscriber line [Figs. 1-4; col. 5, line 46 to col. 6, line 3; col. 8, lines 44-58; col. 10, lines 41-53; col. 10, line 40-58];  
, wherein the voice signals are communicated within a first frequency range (i.e. voiceband), wherein the data signals are communicated within a second frequency range (i.e. non-voiceband), wherein the first and second frequency ranges are distinct [Fig. 2] .

Regarding claim 2, Lee further the apparatus, wherein the integrated circuit further comprises:

a driver (380) for driving a downstream voice signal onto the subscriber line (290) [Figs. 2-3].

Regarding claim 4, Lee further teaches the apparatus, wherein the integrated circuit further comprises: a driver for driving a downstream data signal onto the subscriber line the apparatus (290) [Figs. 2-3].

Regarding claims 5-9, the limitations are shown above.

Regarding claim 10, Lee further teaches the apparatus, wherein the first frequency range (i.e. voiceband range) has an upper bound of approximately 4 kHz [Fig. 1]. However, it is well-known in the art.

4. Claims 1-2, 4-10, 11-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Hjartarson et al [US 6,295,343 B1].

Regarding claim 1, Hjartarson et al teach an integrated subscriber line interface circuit apparatus (transceiver) shown in Fig. 4, comprising:

a driver (416) combining a downstream voice signal in a first frequency range (i.e. voiceband range) and a downstream data signal in a second frequency range (i.e. a non-voiceband range) into a common downstream signal for a subscriber line (404) [Figs. 5-6; col. 5, line 45 to col. 6, line 16]; and

receiver circuitry comprised of a feed resistor (418) coupled to provide an upstream data signal and an upstream voice signal from an upstream signal carried by the subscriber line [Figs. 6-9; col. 6, lines 17-24];

wherein the driver and receiver circuitry reside on a same integrated circuit (i.e. integrated line card 400) [Fig. 4; col.5, lines 31-44; col. 7, lines 36-55].

Regarding claims 2, 4-8, the limitations are shown above.

Regarding claim 9, Hjartarson et al further teach the apparatus, wherein the integrated circuit further comprises:

driver circuitry (416) for driving at least one of a downstream voice signal and a downstream data signal onto the subscriber line [Fig/ 6]; and

receiver circuitry comprised of a feed resistor (418) for receiving at least one of an upstream voice signal and an upstream data signal from the subscriber line [Figs. 4-6; col.5, lines 31-44; col. 7, lines 36-55].

Regarding claim 10, Hjartarson et al further teach the apparatus, wherein the voiceband range has an upper bound of 4 kHz [Fig. 1a]. However, it is well-known in the art.

Regarding claim 11, Hjartarson et al teach a subscriber line transceiver apparatus shown in Fig. 8, comprising:

a first receiver circuit [Fig. 8; elements 514 and 610] for extracting upstream voice signals carried by a subscriber line, wherein the first receiver circuit substantially eliminates any signals outside of a first frequency range associated with voiceband communications to provide the upstream voice signals; and

a second receiver circuit [Fig. 8; elements 514 and 612] for extracting upstream data signals from the subscriber line, wherein the second receiver circuit substantially eliminates any signals outside of a second frequency range associated with data communications to provide the upstream data signals, wherein the first and second



receiver circuits reside on a same integrated circuit die (i.e. integrated line card 600) [Fig. 8; col. 7, lines 10-29].

Regarding claim 12, Hjartarson et al further teach the apparatus, wherein the first receiver circuit further comprises a first driver [Fig. 8; element shown but not labeled] for driving the upstream voice signals ; and wherein the second receiver circuit further comprises a second driver [Fig. 8; element shown but not labeled ) for driving the upstream data signals.

Regarding claim 13, Hjartarson et al further teach the apparatus: wherein the first receiver circuit further comprises a first pass filter coupled to (i.e. embedded within) the first driver, wherein the first filter substantially excludes any signals outside of the first frequency range; and wherein the second receiver circuit further comprises a second pass filter coupled to (i.e. embedded within) the second driver, wherein the second filter substantially excludes any signals outside of the second frequency range [Fig. 8].

Regarding claim 14, Hjartarson et al further teach the apparatus wherein the first filter is inherently a low pass filter to output low frequency signals to POTS (406) [Fig. 8].

Regarding claim 15, Hjartarson et al further teach the apparatus wherein the

second filter is inherently a high pass filter to pass data signals to DSL (408) [Fig. 8].

Regarding claim 16, Hjartarson et al further teach the apparatus: wherein the first receiver circuit further comprises a first hybrid filter (i.e. anti-aliasing filter 514) coupled to the first driver, wherein the first hybrid and first driver co-operate to eliminate downstream voiceband signals; and wherein the second receiver circuit further comprises a second hybrid filter (i.e. anti-aliasing filter 514) coupled to the second driver, wherein the second hybrid and second driver co-operate to eliminate downstream data signals [Figs. 7-8; col. 6, lines 66-67].

Regarding claim 17, Hjartarson et al further teach the apparatus: wherein the first receiver circuit further comprises:

- a first driver for driving the upstream voice signals [Fig. 8];

- a first hybrid filter (i.e. anti-aliasing filter 514) for eliminating downstream voice signals from the received subscriber line signals;

- a first pass filter (i.e. low pass filter embedded within the first driver, Fig. 8) for eliminating any signals outside of the first frequency range, (i.e. voiceband) wherein the first driver, first hybrid filter, and first pass filter co-operate to provide the upstream voice signals from the subscriber line to the exclusion of any other signals carried by the subscriber line;

wherein the second receiver circuit further comprises: a second driver for driving the upstream data signals; a second hybrid filter (514) for eliminating downstream data

signals from the received subscriber line signals; and a second pass filter (i.e. high pass filter) for eliminating any signals outside of the second frequency range, wherein the second driver, second hybrid filter, and second pass filter co-operate to provide the upstream data signals from the subscriber line to the exclusion of any other signals carried by the subscriber line [Figs. 7-8; col. 6, line 60 to col.7, line 29].

Regarding claim 18, Hjartarson et al further teach the apparatus wherein an upper bound of the first frequency range is approximately 4 kHz [Fig. 1a].

Regarding claim 19, Hjartarson et al further teach the apparatus wherein a lower bound of the second frequency range is approximately 25 kHz [Fig. 1a].

Regarding claim 20, Hjartarson et al further teach the apparatus wherein the upstream voiceband signal at 406 is an unmodulated signal [Fig. 8] .

Regarding claim 21, Hjartarson et al further teach the apparatus wherein the upstream data signal is a modulated signal at 408 [Fig. 8].

Regarding claim 22, Hjartarson et al further teach the apparatus wherein the upstream data signal uses a discrete multi-tone (DMT) modulation line code [col. 1, lines 38-56].

***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hjartarson et al [US 6,295,343 B1] in view of Zhou et al [US 5,452,345].

Regarding claim 3, Hjartarson et al do not teach explicitly providing a driver for driving a metering signal to the subscriber line.

Zhou et al teach using a metering signal generator to provide a metering signal to the downstream path and upstream path [col. 2, lines 45-68]. It may, however, be noted that this is a teaching to one of ordinary skill in the art to apply the same to other applications.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Zhou et al with Hjartarson et al in order to provide a metering signal to continuously notify a customer of telephone charges, etc. [Zhou et al; col. 1, lines 12-16].

7. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hjartarson et al as applied to claim 21 above.

Regarding claims 23-25, although Hjartarson et al teach the apparatus wherein upstream data signal uses a discrete multi-tone (DMT) modulation line code [col. 1, lines 38-56], it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to use other modulation techniques such as a carrierless amplitude and phase (CAP) modulation line code, a two binary 1 quaternary (2B1Q) line code, and a quadrature amplitude and phase modulation (QAM) line code for comparison of the results with that of the DMT modulation line code to determine impulse noise effects.

### ***Conclusion***

**8. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

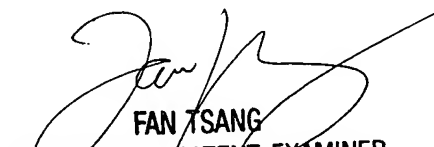
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (571) 272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ramnandan Singh  
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